

Appl. No. 10/688,242
Reply to Office Action of January 10, 2006

IN THE CLAIMS

1. (Currently Amended) A laser comprising:
 - a resonating chamber having a front mirror and a back mirror forming
[[a]] an optical propagation path;
 - an optical gain medium located between the front and back mirrors
within the resonating chamber, wherein the optical gain
medium is configured to produce a laser light along the optical
propagation path; and
 - a birefringent lens located within the resonating chamber and
configured to directly receive the laser light produced by the
optical gain medium, wherein the birefringent lens is
configured to focus and to affect the polarity of the laser light
produced by the optical gain medium and passing through the
birefringent lens,
wherein the back mirror is disposed to directly receive the focused,
polarized laser light output by the birefringent lens.
2. (Original) The laser of claim 1 wherein the birefringent lens is comprised
essentially of an optically active material.
3. (Original) The laser of claim 2 wherein the optically active material is
quartz.
4. (Original) The laser of claim 2 wherein the optically active material is
calcite.
5. (Original) The laser of claim 1 wherein the birefringent lens comprises a
curved exterior surface.

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6. (Original) The laser of claim 1 wherein the birefringent lens is a concave lens.
7. (Original) The laser of claim 1 wherein the optical gain medium is a solid state disk.
8. (Original) The laser of claim 1 wherein the optical gain medium is a solid state rod.
9. (Original) The laser of claim 1 wherein the optical gain medium is a solid state slab.
10. (Currently Amended) A laser resonator for producing a laser beam, the resonator comprising:
 - a chamber having a front mirror and a back mirror defining [[a]] an optical propagation path;
 - an optical gain medium located between the front and back mirrors within the chamber, wherein the optical gain medium is configured to produce a laser light along the optical propagation path in response to pump radiation; and
 - a birefringent lens located within the resonating chamber and configured to directly receive the laser light produced by the optical gain medium, wherein the birefringent lens is formed of an optically active material and comprises a substantially curved exterior surface to focus the laser light while adjusting the polarity of the laser light produced by the optical gain medium and passing through the birefringent lens, thereby forming the laser beam,wherein the back mirror is disposed to directly receive the laser beam output by the birefringent lens.

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11. (Cancelled)
12. (Currently Amended) The laser resonator ~~birefringent lens~~ of claim 10, wherein the optically active material comprises calcite.
13. (Currently Amended) The laser resonator ~~birefringent lens~~ of claim 10, wherein the optically active material comprises quartz.
14. (Currently Amended) The laser resonator ~~birefringent lens~~ of claim 10, wherein the substantially curved exterior surface is concave such that the birefringent lens is a converging lens.
15. (Currently Amended) The laser resonator ~~birefringent lens~~ of claim 10, wherein the substantially curved exterior surface is convex such that the birefringent lens is a diverging lens.

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16. (Currently Amended) A laser for producing a laser beam, the laser comprising:
- a first mirror having a first reflective surface;
 - a second mirror having a second reflective surface;
 - a gain medium ~~displaced~~ disposed between the first and second reflective surfaces adjacent the first mirror and configured to produce laser light therebetween; and
 - an integrated birefringent lens displaced between the gain medium and the second mirror and configured to directly receive the laser light produced by the gain medium, wherein the integrated birefringent lens comprises an optically active material and a curved surface to thereby simultaneously affect both the polarization and focus of light produced by the gain medium and passing therethrough.
- wherein the second mirror is disposed to directly receive the focused, polarized laser light output by the integrated birefringent lens.
17. (Original) The laser of claim 16 further comprising a second lens displaced between the first mirror and the gain medium.
18. (Original) The laser of claim 17 wherein the second lens is a birefringent lens.
19. (Original) The laser of claim 17 wherein the optically active material comprises quartz.
20. (Original) The laser of claim 17 wherein the optically active material comprises calcite.

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21. (New) The laser of claim 1 wherein a portion of the optical propagation path between the birefringent lens and the back mirror is free of a polarization element.

22. (New) The laser of claim 1 wherein the birefringent lens is formed from of a single piece of birefringent lens material.

23. (New) The laser resonator of claim 10 wherein a portion of the optical propagation path between the birefringent lens and the back mirror is free of a polarization element.

24. (New) The laser resonator of claim 10 wherein the birefringent lens is formed from of a single piece of birefringent lens material.

25. (New) The laser of claim 16 wherein a path between the integrated birefringent lens and the second mirror is free of a polarization element.

26. (New) The laser of claim 16 wherein the integrated birefringent lens is formed from of a single piece of birefringent lens material.